

Honeywell

HONEYWELL
INFORMATION
SYSTEMS INC.

L16-92

TITLE:

No. 58001001

ENGINEERING PRODUCT SPECIFICATION
Bulk Core Storage Unit
Modular Power System

EMM

Total Pages 19

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REVISION RECORD

REVISION LETTER	DATE	PAGES AFFECTED	APPROVALS	AUTHORITY
A Prototype Released	SEP 28 1971	RS 1,2 2.1,3-17F		
EP B ISSUED	OCT 20 1971	(1-17F 1,2,2.1,3-17F)		
C Rev.	JAN 04 1972	Rev.Sh.1,2.1,8, 11 & 12; Ret. & Rev.Sh. 5; Added Sh. 5.1	Dec. 3, 1971 <i>PXD 12/30</i>	COLPH-00-0106

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3.2 REGULATED D-C OUTPUT SEQUENCING AND CONTROL

3.2.1 Low Voltage D-C Sequence (On)

The +5 volt supply for core controller and magnetics module logic shall be turned on first.

3.2.2 Low Voltage Confidence (Level 1 Confidence)

After all the low voltage supplies are available and within voltage limits a low voltage confidence signal shall be sent to the core controller. Confidence shall be indicated by a logic "0" and lack of confidence will be a logic "1."

3.2.3 High Voltage Enable

After the receipt of low voltage confidence the core controller shall provide a high voltage enable output to cause the high voltage regulators to be turned on. A logic "0" shall allow the regulators to turn on and a logic "1" or an open circuit shall turn them off.

3.2.4 High Voltage Confidence (Level 2 Confidence)

When the high voltage regulators are up to voltage and within voltage limits, a high voltage confidence line shall be sent to the core controller. Confidence is a logic "0" and lack of confidence shall be a logic "1."

[C] 3.2.5 Turn Off Sequence

The high voltage regulator outputs, per Section 4, shall conform to Figure 1. This represents the normal (nominal RC Time constant) shutdown voltage delay when shutdown is initiated by the loss of phase detection circuit.

$$+5 \left\{ \begin{array}{l} R_{\text{reg}} = 5/40 = .125\Omega \\ C = .244 \text{ F} \\ RC = 30.5 \text{ ms} \end{array} \right.$$

$$+15 \left\{ \begin{array}{l} R_{\text{cro}} = .2\Omega \\ R_{\text{reg L}} = 15/17 = .88\Omega \\ R_{\text{reg}} = .163\Omega \\ C = .016 \text{ F} \\ RC = 2.61 \text{ ms} \end{array} \right.$$

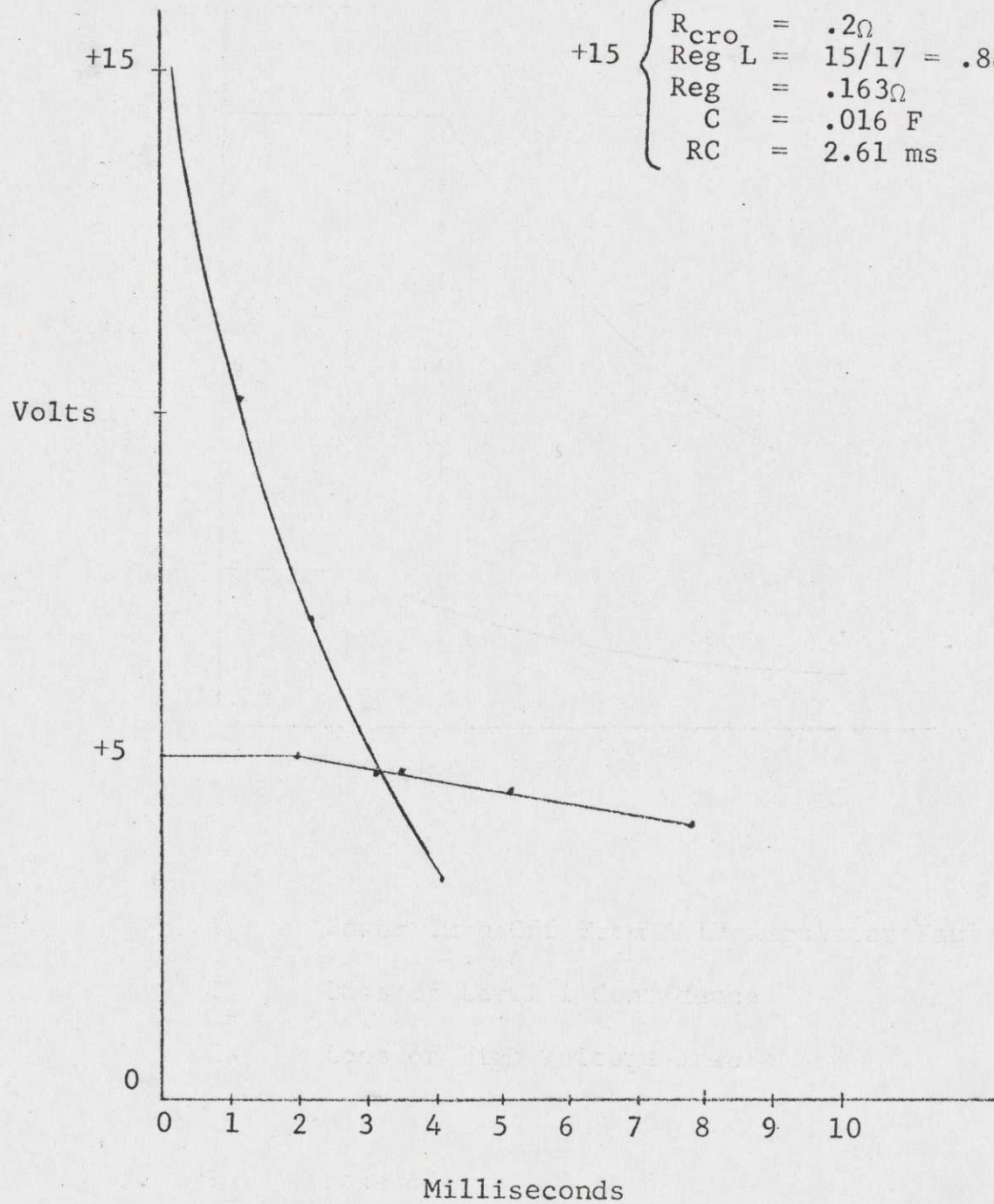
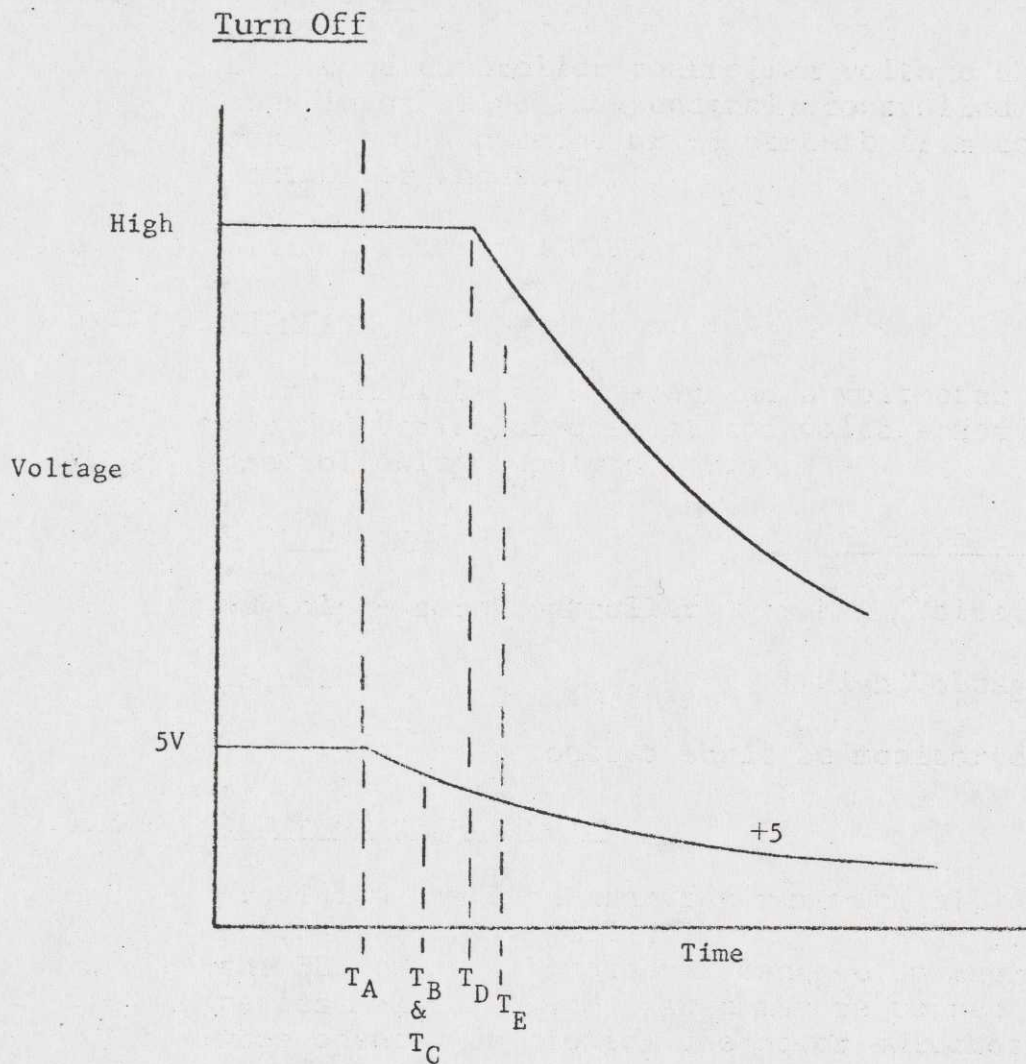


Figure 1



- [C]
- | | | |
|-------|---|--|
| T_A | = | Power Turn Off From A LV Regulator Fault Condition |
| T_B | | Loss of Level 1 Confidence |
| T_C | | Loss of High Voltage Enable |
| T_D | | High Voltage Crowbar Start |
| T_E | | Loss of Level 2 Confidence |

3.5.3 Conditions

Each core controller controlled voltage shall be capable of being independently controlled from normal to +5 percent or -5 percent from core controller inputs.

3.6 OTHER CONTROL CIRCUITS

3.6.1 Metering

There shall be an ammeter and a voltmeter provided for monitoring of current and voltage for each of the following supply outputs:

Low VoltageHigh Voltage

+5 volt - core controller + High Voltage #1

+5 volts + High Voltage #2

Each independent output shall be monitored.

3.6.2 Power Disconnect Switches

Provision shall be made for removing all d-c power (and fan power) to either cabinet of the BCSU to facilitate maintenance on magnetics modules. The system may be turned off when opening or closing the power switches.

[C]

3.7 REMOTE SENSING

Provision shall be made for remote sensing of +5 volts to each CSM.

4. REGULATED POWER OUTPUT REQUIREMENTS4.1 OUTPUT VOLTAGES AND LOADS4.1.1 Regulator Requirements - Low Voltage

	1st Cabinet		2nd Cabinet
	<u>+5V</u> #1 & #2	<u>+5V</u> CC	<u>+5V</u> #1 & #2
Output Voltage Normal	+5V	+5V	+5V
Output Current Design Minimum	68A	40A	68A
Adjustment Range (Minimum)	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$
Margin Percent of Set Value	$\pm 5\%$	$\pm 5\%$	$\pm 5\%$
D-C Load Regulation 0 to 100 Percent Load	$\pm 1\%$	$\pm 1\%$	$\pm 1\%$
Total Tolerance 1000 hours, Load Regulation, Temperature, Line & Load Variations	$\pm 2\%$	$\pm 2\%$	$\pm 2\%$
Transients Load Step Change	$\pm 5\%^{**}$	$\pm 5\%$	$\pm 5\%^{**}$
Ripple*	50mv _{PP}	50mv _{PP}	50mv _{PP}
Spikes on Ripple*	300mv _P	300mv _P	300mv _P

*At constant rated current

**Transient 10 amp step change.